

## **REMARKS**

### **Status**

This Amendment is responsive to the Office Action dated September 25, 2008, in which Claim 1 was rejected. Claims 2-20, 22-25, 27-41, 43-59, 61-66, 68-73, 75-86, 88-100, 102-110, 112-118 have been canceled; Claim 1 has been amended; and new Claims 119-128 have been added. Accordingly, Claims 1, 21, 26, 42, 60, 67, 74, 87, 101, 111 and 119-129 are pending in the application, and are presented for reconsideration and allowance.

### **Election/Restrictions - 35 USC 121 and 372**

In accordance with 37 CFR 1.499, the Examiner required election of a single invention to which the claims must be restricted from the following:

Group I, claim 1, drawn to an electronic module encapsulated in a case.

Group II, claim 21, drawn to a sequencer being integrated on the same substrate as the array.

Group III, claims 26 and 42, drawn to a signal corrector to compensate in the digital output signal for any drifts in the array.

Group IV, claims 60 and 67, drawn to a generator of a sampling signal synchronized with at least one analog electrical signal.

Group V, claims 74 and 87, drawn to means for applying at the detector's input an input reference signal and means for producing an output signal from the array's read signal and an output reference signal.

Group VI, claims 101 and 111, drawn to reading in the digital output signal and comparison of the data values.

The undersigned hereby confirms the election of Group I, claim 1, without traverse, for prosecution in the present application.

### **Claim Rejection - 35 USC 103**

Claim 1 stands rejected under 35 USC 103 as being unpatentable over US Patent No. 6,404,854 to *Carroll et al.* in view of US Patent Publication

No. 2004/0000630 to *Spartiotis et al.* and further in view of US Patent No. 5,572,566 to *Suzuki et al.* This rejection is respectfully traversed.

Claim 1 is directed to a dental radiology apparatus comprising an intraoral sensor comprising a detector that includes an active pixel array produced using biCMOS technology, the active pixel array converting received x-rays into at least one analog electrical output signal; an electronic module encapsulated in a case and which has at least one detector activation device connected to the case, the module being distinct from and linked to the sensor by a wire link for the transmission to said sensor of a detector activation signal generated in the module and for the transmission to the module of said at least one analog electrical output signal, the module having an analog-digital converter for converting said at least one analog electrical output signal into at least one digital output signal; and a remote processing and display unit of said at least one digital output signal which is linked to the electronic module by a wire link intended to ensure the transmission to the unit of said at least one digital output signal.

It is the Examiner's position that *Carroll et al.* disclose an intraoral sensor having an active pixel array which converts received x-rays into at least one analog electrical output signal, and a remote processing computer (81) and display unit (81c) of at least one digital output signal which is linked to the interface electronics by a wire link 82. The Examiner recognizes that *Carroll et al.* do not disclose an encapsulated electronic module or a detector activation device. Accordingly, *Spartiotis et al.* are applied as disclosing an electronic module (FIG. 2, control electronics 24) encapsulated in a case as shown in FIG. 17 thereof and *Suzuki et al.* are applied as disclosing an activation switch 21.

It is agreed that *Carroll et al.* fails to disclose either an encapsulated electronic module or a detector activation device. However, the Examiner's contention that the interface electronics 85 of *Carroll et al.* suggest an intermediate connection point (which can presumably be substituted with an electronic module as allegedly characterized by *Spartiotis et al.*) appears to be unfounded. Instead, the "interface electronics" 85 of *Carroll et al.* is simply an intermediate USB connector. More specifically, *Carroll et al.* describe the interface electronics 85 as a USB interface included so that the user does not have

to reach around to the back of a computer to plug the connector end of a USB cable into the computer, and to enhance the USB connection. *See* column 5, line 56 through column 6, line 6 of *Carroll et al.*

It is further respectfully submitted that neither of *Spartiotis et al.* nor *Suzuki et al.* disclose an encapsulated electronic module distinct from and linked to the intraoral sensor by a wire link or a detector activation device connected to the case of the encapsulated electronic module. Instead, in paragraph [0085] thereof, *Spartiotis et al.* explain that preferably some, if not all, of the control electronics 24 are implemented on the substrate at the periphery of the image array (15). In other words, what the Examiner would characterize as the claimed distinct electronic module (24) is instead integrally formed with the imaging device (15) of *Spartiotis et al.* Thus, the control electronics 24 of *Spartiotis et al.* are not distinct from and linked to the sensor by a wire as claimed. Even though the Examiner identifies FIG. 17 of *Spartiotis et al.* as including a case for encapsulating the control electronics 24, the related disclosure instead identifies the cassette as containing those components described in connection with FIGS. 9 and 10 rather than the control electronics.

Finally, the activation device 21 of *Suzuki et al.* is an exposure switch connected to the x-ray source 20 rather than connected to a case of an electronic module as claimed.

Thus, because *Spartiotis et al.* integrally combine the control electronics 24 with the image array 15, and the interface 85 of *Carroll et al.* is simply a USB connector, there is no teaching or suggestion of an electronic module encapsulated in a case, distinct from and linked to the intraoral sensor by a wire link. Further, absent an electronic module distinct from and linked to a sensor by a wire link, there is no motivation to connect the exposure switch of *Suzuki et al.* to any component other than the x-ray source as in *Suzuki et al.*

Because *Carroll et al.* fail to disclose or suggest, among other things, an electronic module encapsulated in a case and which has at least one detector activation device, either alone or in combination with *Spartiotis et al.* and *Suzuki et al.*, Applicants traverse the Examiner's rejection of independent claim 1.


Claims 119-128, newly added, depend either directly or indirectly from independent claim 1. These dependent claims are therefore allowable for at least the same reasons stated above with regard to independent claim 1. In addition, each of these dependent claims recites unique combinations that are neither taught nor suggested by the applied art, and, therefore, each is also separately patentable.

### **Summary**

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

For the reasons set forth above, it is believed that the application is in condition for allowance. Accordingly, reconsideration and favorable action are respectfully solicited.

Respectfully submitted,

  
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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Carestream Health, Inc. at 585/627-6687 or 585/627-6740.